UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,881	09/28/2001	Dieter Schulz	481340010039	3493

7590 08/30/2004

David B. Cochran, Esq.
Jones, Day, Reavis & Pogue
North Point
901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER	
SINGH, RAMNANDAN P	

ART UNIT	PAPER NUMBER
2644	7

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,881	SCHULZ ET AL	
	Examiner	Art Unit	
	Ramnandan Singh	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2001*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *#, 1/28 September 2001; #2/19 December 2003; #3/31 December 2003.*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed on 28 September 2001.

2. **Preliminary Amendment**

The preliminary amendment filed on 12 January 2004 is approved.

Drawings

3. The drawings are objected to because Fig. 2A at step "A" shows "Yes" with no arrow and indication of the destination. Further, Fig. 2A shows "No" at step D with no destination to go. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "the ," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it contains more than 150 words and consists of a single incomplete sentence lacking a transitive/ intransitive

verb. Correction is required. See MPEP § 608.01(b).

Claim Objections

6. Claim 1 is objected to because of the following informalities:

Claim 1 recites the limitation " **updating a variance** based on the difference" in line 7. The term "**updating a variance**" does not make sense because a variance has not been calculated as yet. It is suggested that a new limitation, "Calculate a variance of a sample window" in claim 1 be added.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graumann [US 6,175,634 B1] in view of Reaves et al [WO 9602911A1].

Regarding claim 1, Graumann teaches the computation of a variance parameter (i.e. **standard deviation of a variance)** based on energy difference using four sample windows shown in Figs. 9A and 8, as an example, to generate four consecutive standard deviation values, SD1 through SD4, wherein the variance is the expected value of the magnitude square of the difference between the statistical variable and its expected value (See Equation (1)) [col. 7, lines 1-31]. Further, Graumann discloses detecting noise or speech, in the event that the variance parameter is less than a predetermined multiple of the energy of the signal within a most recent one of the sample windows then indicating the presence of noise, and setting a noise level parameter as a function of the energy of the signal within the most recent one of the sample windows, and in the event that the variance parameter is greater than or equal to the predetermined multiple of the energy of the signal within the most recent one of the sample windows then indicating the absence of noise in the most recent sample window [Fig. 14; col. 9, lines 7-21]; and in the event that the noise level parameter exceeds the energy of the signal within the most recent one of the sample windows then setting the noise level parameter to equal the energy of the signal

within the most recent one of the sample windows (i.e. **update NPDF (step 705))** [Figs. 4B, 4C, 5-7; col. 7, line 44 to col. 8, line 59]. It may be noted that this example involving four sample windows equally holds for the case of two sample windows also.

Graumann does not teach expressly updating a variance parameter based on the difference in energy of signal between each of the sample windows.

Reaves et al teach a method of computing a variance in sample Hamming windows shown in Fig. 2 [Pages 10-12; 18-20]. It is nevertheless a teaching to one of ordinary skill in the art to do the same thing with Graumann.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the method of updating a variance of Reaves et al with Graumann to speed up the updating process rather than recalculating the quantities A and B [Reaves et al; Pages 11-12].

Regarding claim 3, the combination of Graumann and Reaves et al further teaches the method wherein the step of updating the variance parameter further comprises the steps of: comparing the variance parameter to the difference in the energy of the signal within each of the sample windows and setting the variance parameter to the weighted average of the difference and a previous value of the variance parameter [Graumann; Equation (2)]; and in the event that the variance

parameter is greater than the difference then adjusting the variance parameter with a predetermined decay ratio, and in the event that the variance parameter is less than or equal to the difference then adjusting the variance parameter with a predetermined attack ratio [Gruamann; Figs. 17, 18; col. 10, line 65 to col. 12, line 44].

Regarding claim 4, the combination of Graumann and Reaves et al further teaches the method, wherein the step of setting the noise level parameter as a function of the energy of the signal within the most recent one of the sample windows further comprises setting the noise level parameter to the weighted average of the energy of the signal within the most recent one of the sample windows and a previous value of the noise level parameter [Graumann; Equation(2); col. 11, lines 42-53].

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Graumann and Reaves et al as applied to claim 1 above.

Regarding claim 2, the combination of Graumann and Reaves et al does not teach expressly discarding two successive ones of the sample windows at start up and for each subsequent first one of the two successive sample windows which exceeds a predetermined maximum energy. However, discarding a few sample windows to reduce noise is well-know in the art.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to discard any number of sample windows in order to reduce noise subject to circuit, system and design constraints.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chan et al teach a method for reducing noise in a speech signal [Figs. 1-2, 7].

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644